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CENTRAL INTELLIGENCE AGENCY

**INFORMATION REPORT**

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COUNTRY USSR

SUBJECT Soviet Work in Low Temperature Superconductivity

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1. The Intermediate State of Superconductors by E. M. Lifshitz and Yu. V. Sharvin. (communicated by Academician L. D. Landau 13. VI. 51) Dokl. Akad. Nauk. SSSR, 79, 783, 1951
2. The dependence of penetration depth of a magnetic field into a superconductor on the strength of a magnetic field, by Yu. V. Sharvin. J. Exp. Theor. Phys. USSR, 21, 658, 1951
3. Destruction of Superconductivity by alternating current, by A. A. Galkin and P. A. Bezruchyi. J. Exp. Theor. Phys. USSR, 20, 1145 (1950)
4. Hydrodynamical Equations of a Superconducting Fluid, by V. S. Sorokin, Ivanovski Pedagogical Institute. Russian Journ. Expt. Theor. Physics, 19, 553 (1949)
5. Surface Effects in a Superconductor in the Intermediate State, by A. Meshkovsky and A. Shalnikov. Journ. of Exp. & Theor. Phys., USSR, 17, 851, 1947

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1. [REDACTED] The only Soviet papers in low temperature which we have been able to receive have been purely theoretical in nature and while it is dangerous to assume the Soviets are capable or paralleling their theoretical work with actual experimentation, this approach of obtaining experimental confirmation of theoretical studies is a logical approach. For this reason it might be well to interpret the Soviet papers

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in the light of what is being done by US laboratories working in this field.

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2. Soviet work in low temperature has been of uniformly high quality and while the Russian Journal on Experimental and Theoretical Physics contains pictures of Stalin, [redacted] no evidence that the Russian low temperature scientists have in any way let politics enter into their work. Also, [redacted] no direct military application of Soviet work in the field of superconductivity.

3. Of course such Soviet leaders in the low temperature field as L. D. Landau and E. M. Lifshitz are also active in the field of nuclear research. This is primarily because of their excellent work and textbook on Quantum Physics and Scattering Theory. However, [redacted] there is no direct practical connection between the two fields.

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